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ABSTRACT

Positivist methodology, with an emphasis on quantification and measurement, is the most effective approach to behavioral research in geography and is the only means to obtain valid knowledge. Although initial behavioral research in geography was centered on positivist tradition, many of the classic tenets have been replaced. Tendencies toward physicalist and reductionist interpretations of human behavior have lost most of their strength, and the image of the scientist as the passive observer of an objective reality has given way to studies based on the interaction between the researcher and the conscious human subject. Finally, the traditional positivist separation of fact and value is no longer possible to maintain. What remains after these tenets have been disposed of, however, are standards of clarity, consistency, and rigor in the development of argument and the conduct of inquiry. This analytic mode of discourse offers the closest one may come to a public, interpersonal, intersubjective mode of communication. Adoption of a positivist mode of thought has enabled geographers to interact more freely with researchers in many other disciplines. (KC)

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Positivist Philosophy and Research on Human Spatial Behavior[1]

by

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Introduction

In the longer version of this paper that has been circulated in draft form to other conference participants, we begin our presentation by commenting on the origins and purposes of behavioral research in geography. Our general feeling is that these facets of behavioral research have not been clearly understood by recent reviewers of the research area. We also argue that, without a clear understanding of these origins and purposes, it is possible to wrongly attribute characteristics to the area, and in the process of setting up straw men for absolute destruction, to focus on motives that are more peripheral than central.

This same fuzziness appears to dominate many geographer's views of positivism as a philosophy. We have chosen, therefore, to concentrate our efforts in this verbal presentation on discussing the role of positivist philosophy in research on problems relating to human spatial behavior.

We would like you to keep in mind, however, that although the work of one of us has been consistently in the positivist tradition, our purpose is not to defend positivism as a distinct body of philosophical tenets that are either necessary or particularly valuable for the growth of knowledge in our field: this has been attempted elsehere recently and well. Instead, we will try to show why we see in this much maligned philosophy, surely not the key to Reality or the shortest way to Truth, but a source of enduring principles for the conduct of that kind of open, lucid, self-expanding, self-correcting, self-critical mode

of inquiry that we feel deserves our full support.

While there is usually little disagreement as to what argument or piece of work is in the positivist tradition, positivism itself as a philosophy turns out to be extremely difficult to define. A few landmarks and names in the long history of that intellectual tradition are easy enough to pinpoint: the distant roots in the Cartesian "Meditations", the first implicit formulations in Hume, the official beginnings in Comte's "Positive Philosophy", the peak of intellectual elegance reached with the version of the Vienna Circle that came to be known as "logical positivism", and the post-Wittgensteinian movement of linguistic and analytic philosophy that remains very influential to this day. But as the current became the mainstream in the philosophy of science, these tightly knit, professionally polished systems spawned a host of informal postulates that took on a life of their own: popularized accounts, ad hoc reformulations, working philosophies, methodological credos and several contrasting sets of ontological beliefs, all sought and found a place under the umbrella of "positivism." The wealth of positivist "isms" is indeed overwhelming: scientism, physicalism, objectivism, reductionism, materialism, naive empiricism, naive realism, instrumentalism, phenomenalism, behaviorism, verificationism - the list can be extended ad lib. (There are in fact as many "isms" here as there are "...ologies" listed in David Seamon's paper).

With positivism came a model of explanation subsuming particular phenomena to universal law; a formula - the 'scientific method' - for obtaining valid knowledge, and a cult

of quantification and measurement that changed current perceptions of what empirical reference may mean. Many of these ideas were an integral part of the admirable albeit flawed edifice of logical positivism, but pulled out of its context they became mini-philosophies in their own right. Taken along with some of the other, less thoroughly examined postulates about the nature of knowledge and science, these led, in the hands of social scientists in particular, to much superficial and objectionable work.

It is a fact that a substantial part of behavioral research in geography was born in the strongly positivist tradition of location theory and spatial analysis, which we now find wanting in several respects; and indeed, most of the cliches typically associated with positivism can be found somewhere or other in the work of behavioral geographers to this day. Looking back at this past decade of development, however, it is quite remarkable to see to what extent behavioral research in geography seems to have moved beyond the original positivist assumptions, while gaining momentum as an articulate and coherent perspective on the issue of human spatial behavior. Few, if any of the classic positivist tenets now seem to be necessary.

First to go, as the study of cognitive images became a central theme, was the famous logical positivist stance on the non-sense of the unobservable. With the recognition of mental reality as a primary object of study, whatever tendencies there may have been to physicalist and reductionist interpretations of human behavior lost most of their strength. Work based on aspects of artificial intelligence and the non-quantitative

branches of mathematics revealed the existence of alternatives to measurement and quantification which may well be better suited to the kind of issues with which human geographers are concerned. The image of the scientist as the passive observer of an objectively given reality was drastically altered as an increasing number of behavioral studies came to be based on a living interaction between the researcher and the conscious human subject seen as an active contributor to the growth of knowledge about other conscious human subjects. Many geographic researchers saw that this subject-to-subject interaction also inflicted the final blow on any remaining objectivist beliefs, since it was no longer possible to ignore the constitutive role of the mediating communication language in the shaping of whatever empirical 'findings' there might be.

By making cognition the basis of human spatial behavior, it also became clear that the traditional positivist separation of value and fact was no longer possible to maintain. The central assumption of behavioral geography is that 'man reacts to his environment as he perceives and interprets it and this reaction is mediated by previous experience and knowledge.' But interpretation, experience and even knowledge are clearly a function of social and cultural values and constraints, of personal likes, dislikes, memories, emotions, fears and beliefs, prejudices, misconceptions, mental capacities, habits and expectations, along with all the institutional, economic and physical factors that characterize the public, 'objective' environment and the less obvious (subjective) hidden environments. Thus people's values must be facts for the

behavioral geographer, since they causally determine other facts - the facts of overt spatial behavior. Seen from this perspective, the accusation that behavioral researchers sever the individual from society also loses much of its strength, and so does the view that this approach can only deal with a static world in which factual stimuli elicit indefinitely predictable responses. On the contrary, the picture that emerges is one in which mind and world are in constant dynamic interaction, the fact becoming part of a mental construct that will shape the next fact as both the things in the world and the mind's experience of these things develop. This is a far cry from the notion of an a priori given world that is so central to traditional positivist understanding, and in fact much research on human spatial behavior is now coming much closer to a constructivist epistemology as propounded by the neo-Kantian philosophers and psychologists.

What remains after cumbersome and dispensable tenets have been abandoned is what is truly positive in positivist thought, the lasting virtues of positivist philosophy that other traditions can try to challenge but cannot afford to ignore. Positivism has set standards of clarity, consistency and rigor in the development of argument and the conduct of inquiry that are unparalleled in the history of human thought. These derive directly from the centrality of the notion of logico-mathematical structure in that particular tradition, a centrality which, despite a widely held belief, does not reflect any illusory pursuit of objectivity, truth, certainty, and definitive knowledge: rather, mathematical structure is to be seen as the

most powerful template for drawing out the outlines of that part of experience that is accessible to logical thought. While we well know by now that perfect clarity, coherence and rigor is nowhere attainable outside the realm of pure mathematics, these standards do point to a direction of inquiry away from fuzzy-mindedness, verbosity, muddled thinking and obscurantist discourse.

What is left of traditional positivism in this picture is not so much a philosophy as a distinct mode of discourse, a space of possibilities for theoretical languages that meet the criteria of clarity, coherence, intersubjective validity and a concern never to lose experience from sight. This is why of all the attacks on positivism of which philosophy and social science are nowdays replete, none are more critical than the ones directed at this very basis of analytical thinking.

Prison for prison, there are at least three reasons of principle why one might choose the analytic model of discourse, all of which relate back to its roots in logico-mathematical structure. First, analytic languages are the closest we have yet seen to a truly public, interpersonal, intersubjective (if not entirely intercultural) mode of communication: in a world where so many people are divided by so much, we welcome this potential for mutual understanding. Second, it is possible for analytic discourse to be explicit about its own limits in a way no other mode of thinking is ever likely to be. In physics, for instance, both Hertz and Eddington have attempted to map the bounds of scientific knowledge 'from within', showing to what extent and up

to what point our understanding of the physical world depends on the properties of the theoretical languages used for its description. There is no reason why something of this sort could not be attempted in geography, and indeed one of us has already suggested that this can be done. Third, because the gist of analytic discourse is purely formal, that is, syntactical, no particular semantic commitment about the real is called for. There is, however, at least one extra-syntactic premise that seems necessary, and this is the 'atomistic' stipulation that at some level of analysis or other, things must fall into well-defined discrete sets. While in the general case this does not necessarily imply a rigid disjunctive logic, it does seem to exclude ontologies based on essentially non-atomistic notions such as prelinguistic realities and continual flux. This is where we come up against what is probably the single major limit of analytic language, but before we get to that point, a lot, we think, could still be achieved.

The fact that the analytic enterprise does not seem impossible a priori does not mean, of course, that analytic geography is cleared of every suspicion. We still have to ask how behavioral geography meets the empiricial challenge presented by alternatives claiming to be more adequate approaches to the human world. We do not need to refer to the modest but concrete success of traditional positivist geography in describing human phenomena at the aggregate level, except to point out that none of the current alternatives is able to claim as much. The relevant question at this point, however, is where behavioral geography may stand in relation to its main challengers as a

perspective for explaining human spatial behavior, as opposed to merely describing mass movements of humans in space. Discussing this important question would take us beyond the scope of this short presentation, but we do address it elsewhere (see footnote 1). Instead we will try to outline some future directions in analytic behavioral geography that are already taking shape.

As we pointed out throughout this paper, much of the research undertaken within the field of geography that adopts a behavioral approach can no longer be described as positivistic. Some general principles of positivism (such as the search for process knowledge, a search for generalizability, an empirical emphasis, and the selection of scientific modes of reasoning and analysis), are widespread and will undoubtedly continue to be in widespread use. Adoption of the positivist mode of thought brought geographers to a stage where they could more freely interact with and comprehend researchers in a large number of other disciplines. This cross disciplinary interaction has been extremely fertile in the search for solutions to some problems and in terms of the general rate of knowledge accumulation. For example, once the geographer has brought to bear all his experience and skills on the problems of representing and analyzing cognitive information about places, it was possible to produce explicit theories of the process of learning about spatial phenomena and to begin the process of modelling human decision structures. These steps appear to have been particularly important to recently developing areas such as artificial intelligence modelling. For example, three experimenters at U.C.S.B.[2] are currently conducting an

examination of how children acquire and use spatial information during way finding tasks in large scale suburban environments. They will be testing two alternative theories of the accumulation of spatial knowledge - the anchor point theory which developed in geography, and a modified version of this specifically related to developmental learning theory that has developed in psychology. Parallel to this investigation will be the construction of a computational process model (implemented as an operational computer program) which will focus on the manner in which children's knowledge structures are organized, accessed, and modified during the performance of spatial tasks. The final task will be to try to estimate how the knowledge structure effects spatial behavior. This is but one example of how our process oriented behavioral research has contributed to the search for knowledge in an interdisciplinary context - the disciplines involved are computer science, psychology, geography, and the emerging field of cognitive science.

It should be pointed out, however, that activities such as these are the result of a long term commitment to behavioral research practices. We wish to stress that on-going behavioral research using a scientific approach is not an easy thing. There are immense difficulties involved in terms of experimental design, problem formulation, data collection, data analysis, methodology selection, relation to theory, verifiability, reliability, and so on, all of which take considerable portions of time. The behavioral researcher who is interested in using the scientific approach had better be committed to many years of study even for small problems. One should not expect to be able

to define a problem of any significance and hope to investigate or perhaps solve such a problem in the short time spans with which many traditional geographic problems are investigated (i.e., a year or less). Undertaking scientific process oriented behavioral research requires a long term commitment with no guarantee of successful results. While we are convinced that this is a viable and in fact necessary procedure, if we wish to seriously advance the frontiers of behavioral research in geography, we stress that it is not an area that should be chosen by the poorly trained, the faint hearted, or the dilettante. We are convinced that there is sound opportunity as a result for adopting this approach to contribute to theory, to develop models, and to advance the general state of knowledge on a variety of extremely relevant behavioral problems.

In the body of this paper, we have presented some thoughts on positivism and have highlighted some of the reasons that make us prefer analytic geography to its main competitors: before we close, we can mention a few more.

Although analytic thinking does not presuppose any particular ontology, being human, as well as human geographers, we cannot help project our own. We thus prefer analytic geography to the Marxist alternative because we believe that in the realm of all real things that contains economies, social and institutional structures, stones and stars, unicorns, human beings, Hamlet the prince of Denmark and the set of all sets, human beings somehow are the primary, most important reality and deserve to be treated as such. As much as we may applaud the recent emphasis on social structure, we would regret to see human

geography become social at the cost of ceasing to be human.

We also prefer analytic geography to the phenomenological alternative because we believe that human existence is anchored in physical space, and any perspective that sees man as disembodied consciousness hovering over a world of thoughts and feelings perpetuates the alienating and unnecessary dichotomy between body and soul.

We prefer analytic thinking to both these alternatives because it does not sever geography from the wider network of contemporary knowledge that covers not only natural and formal science, but also some of the most remarkable advances in philosophic thought. What is at stake here is not the survival of naive, old-fashioned physicalism that sees the model of all knowledge in science and in particular that of three centuries ago: but we should keep in mind that men and women today, working at the frontiers of physical science, are probing questions about the nature of reality, the essence of knowledge and the relation between theoretical image and world which only the visionaries among human scientists ever dream of asking. As long as we do not isolate ourselves from the mighty current of thought in which these quests develop we may draw from these insights, with the care and caution that is due, to help make geography the powerful, enlightened, self-critical human science most of us would like to see. There are ways of knowing other than those of science and it is not for us to say which way of knowing is the best, but if we want to retain the option of keeping geography among the sciences then we have no choice but to accept the few fundamental principles of analytic discourse.

Yet the reality accessible to analytic thinking is only one of many we may choose to explore, and the human world presents too many facets for any single perspective ever to capture it in its entirety. There is, we think, a place in geography for the poet and the prophet and the seer and the critic and the rebel and even the dogmatic doctrinaire, as they all tramp along that intricate network of overgrown and often impassable footpaths that now replace the age-old vision of a royal road to Truth. But even more than these lonely travellers we value the growth of strong, articulate alternative perspectives that let us glimpse aspects of reality which analytic thinking cannot reach. So may these flourish side by side and continue to enrich our understanding.

Footnotes

1. This paper has been rewritten as two separate papers, the titles of which are: "Analytic Research, Positivism and Behavioral Geography" and "Positivist Philosophy and Research on Human Spatial Behavior". The first has been submitted for publication to The Annals of the Association of American Geographers. The second is to be published as a chapter in a book, edited by David Seamon and Tom Saarinen, to be produced by the University of Chicago Press.

2. The researchers involved are Professors T. Smith and R. Golledge (Department of Geography) and Professor J. Pellegrino (Graduate School of Education).